United Nations A/63/170/Add.1

General Assembly

Distr.: General
15 September 2008
English
Original: English/Spanish

Sixty-third session
Item 91 (p) of the provisional agenda*
General and complete disarmament

Effects of the use of armaments and ammunitions containing depleted uranium

Report of the Secretary-General

Addendum**

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* A/63/150 and Corr.1.

** This information was received after the submission of the main report. The number of replies received now stands at 22.

08-50661 (E) 011008

II. Replies received from Governments

Bangladesh

[Original: English]
[31 July 2008]

Depleted uranium munitions produce toxic and radioactive dusts which are carcinogenic and lead to other-life threatening conditions in humans, are harmful to animals and have long-term adverse effects on the environment. Bangladesh, therefore, does not support the use of depleted uranium in armaments to achieve short-military advantage.

Bolivia

[Original: Spanish]
[31 July 2008]

1. Depleted uranium is a waste metal obtained from the process of uranium enrichment. Depleted uranium is used in the following armaments and ammunitions:

(a) 30 mm Avenger cannon on the A-10 Thunderbolt II;

(b) 30 mm M230 cannon on the Apache Helicopter (used by the United States of America);

(c) 25 mm M242 chain gun on the Bradley and the LAV-AT;

(d) 25 mm cannon on the AV-8B Harrier (used by the Marine Corps).

2. It is also used in armour-piercing munitions, because it bursts into fragments on impact and more easily penetrates the armour. Armaments containing depleted uranium are considered conventional weapons rather than nuclear weapons.

3. The use of these munitions has been criticized by physicians and human rights organizations owing to the large number of persons, including both civilians and soldiers, who have developed cancer, leukaemia and other diseases after breathing or ingesting particles of depleted uranium.

4. United States, British and Spanish soldiers claim to have suffered from carcinogenic diseases after the war in the Balkans, owing to exposure to depleted uranium. They have been asked to participate in detailed studies on the possible negative impact of such substances on the health of war veterans.

5. In view of the damage to ecosystems and, even more importantly, to human beings, caused by wars started because of capitalist interests in controlling the natural resources of various countries, regardless of the damage they may cause to land, air and water ecosystems, the developed countries must demonstrate their future willingness to comply with international humanitarian law.

6. It has been openly acknowledged that the United States of America used banned radioactive materials, such as uranium in the form of the isotope depleted uranium, in the military conflicts that have occurred throughout the world since 1991: in the so-called Gulf War, in Yugoslavia from 1995 to 1998, in the Balkans war, in Afghanistan in 2002 and, most recently, in the invasion of Iraq on 20 March

2003 and thereafter. In that connection, new types of disease have appeared, including cancer and other illnesses that had not previously represented a main cause of death in Iraq, and there has been an increase in the number of sufferers of these diseases over time.

7. Obviously, the environment is a key factor in individual and collective well-being. A new awareness of environmental concerns is therefore required, based on shared responsibility. This in turn must bring about a change of attitude among Governments, institutions directly involved in the topic, social and humanitarian support bodies and, lastly, the population in general, under the principle of world environmental solidarity. On the basis of a global concept of the human being, health should be understood as a process of achieving a balance or harmony between the various dimensions of the human person, including between that person and his or her environment.

8. It is appropriate to analyse the reasons for the existence of congenital deformities, congenital abnormalities or congenital diseases — in other words, structural or functional diseases that are present at birth. The development of the embryo or foetus may be altered by a number of external factors, including radiation, heat, chemicals, infections and maternal diseases. These external agents are called "teratogenic" (from the Greek *teras*, *terat-* "monster" and *genes* "-born").

9. It is absolutely essential for the United Nations and members of the North Atlantic Treaty Organization (NATO) to use their good offices to impose a moratorium on the use of depleted uranium weapons and to redouble their efforts to promote a worldwide ban on their use as well as systematically to halt production and procurement of this type of weaponry.

10. Whereas, despite the fact that scientific research has so far been unable to find conclusive evidence of harm, there are numerous testimonies as to the harmful and often deadly effects on both military personnel and civilians, international health institutions should place greater emphasis on determining the consequences or aftermath of the use of weapons containing depleted uranium.

11. There is a need to give serious thought, at the regional and international levels, to the future utility of unguided munitions, as well as cluster bombs, mines and other weapons of indiscriminate effect, such as depleted uranium weapons.

12. States Members of the United Nations, humanitarian institutions and others should take the lead in working — through the United Nations or through a "coalition of the willing" — towards an international treaty establishing a ban on the development, production, stockpiling, transfer, testing and use of uranium weapons as well as the destruction or recycling of existing stocks, should there be conclusive scientific evidence of harm caused by such weapons.

13. The armed forces of Bolivia currently have no depleted uranium weapons.

14. On the basis of technical data available on the Internet, it may be determined that depleted uranium munitions generally vary between 25 mm and 30 mm calibre or larger. Our armed forces have not become involved with this type of weapon.

15. Bolivia's position, from the military point of view and as a peace-loving country, is demonstrated by the fact that it is a party to many multilateral and regional agreements whose purposes are exclusively peaceful.

16. Bolivia, a free and independent republic and a great believer in peace, and also a member of the Group of Latin American and Caribbean States in a region which is also considered a peaceable part of the world, condemns, at the urging of the European Union, the use of depleted uranium weapons which, like other types of weapons, cause a great deal of harm to humanity, in particular to civilians.

Italy

[Original: English]
[12 August 2008]

1. At present there are no certain scientific data available that could prove, beyond any doubt, that there is a close relationship between exposure, internal or external, to depleted uranium radiation and the onset of malignant forms of cancer.

2. It is nevertheless advisable to encourage the establishment of a monitoring system in those areas where depleted uranium ammunitions have been used, in order to detect possible long-term effects on civilian population and on the environment. An international research project could be promoted not only to study the effects of the use of weapons and ammunitions containing depleted uranium, but also to protect civilians and soldiers engaged in peacekeeping operations.

Jamaica

[Original: English]
[12 August 2008]

1. The Government of Jamaica is in full support of United Nations efforts to dissuade and curb the use of depleted uranium weapons systems, commonly known as radioactive "dirty bombs", in accordance with human rights and international humanitarian law.

2. Jamaica's long-standing policy on disarmament and the non-proliferation of weapons of war was the reason for the Government's firm support of General Assembly resolution 62/30. Jamaica remains supportive of paragraph 2 of the draft resolution contained in document A/C.1/62/L.18, requesting Member States to "refrain from using armaments ammunitions containing depleted uranium until studies to determine the effects of such armaments and ammunitions on human health and the environment are completed".

3. Jamaica is cognizant of the many and significant preventive efforts ongoing at the national, regional and international levels to rebuild and rehabilitate countries from the effects of war and the consequent unjustifiable suffering meted out to civilians. Jamaica also draws attention to the immense difficulties these countries face to make a sustainable transition from war to peace due, in large part, to the immediate and residual effects of armaments and ammunitions on land and soil productivity and on the health and livelihood of the people, the productive and regenerative force of these countries.

4. It is in this light that Jamaica:

(a) Encourages Member States to support fully multilateral efforts aimed at regulating the manufacture and use of weapons which cause gross and unnecessary suffering;

(b) Urges the international community, especially members responsible for the manufacture and use of uranium-based weapons, to adopt the precautionary principle in relation to the use of depleted uranium munitions in view of growing evidence of the hazards that exposure to these weapons poses to mankind and the many unanswered questions relating to the health of combatants, peacekeepers and civilians exposed to military applications of depleted uranium;

(c) Is hopeful that the manufacturers and users of uranium-based weaponry will enable investigations and appropriate information campaigns on the real risks of depleted uranium in military applications;

(d) Will recommend re-inclusion of paragraph 2 when the resolution is tabled for review by the General Assembly at its sixty-third session.

III. Replies received from agencies and organs of the United Nations system

United Nations Environment Programme

[Original: English]
[11 September 2008]

1. Depleted uranium, the main by-product of uranium enrichment, is a chemically and radiologically toxic heavy metal. It is mildly radioactive, with about 60 per cent of the activity of natural uranium. This dense metal is used in munitions for its penetrating ability and as a protective material for armoured vehicles. The health effects resulting from depleted uranium exposure depend on the route and magnitude of exposure, as well as characteristics such as particle size, chemical form and solubility. Where depleted uranium munitions have been used, the penetrators, penetrator fragments and jackets or casings can be found lying on the surface or buried at varying depth, leading to the potential contamination of air, soil, water and vegetation from depleted uranium residue.

2. The involvement of the United Nations Environment Programme (UNEP) in studies on depleted uranium started as part of the Programme's post-conflict work in the Balkans, following the Kosovo conflict in 1999. To evaluate and address the potential contamination of the environment by depleted uranium, UNEP conducted three separate environmental assessments and measurements on sites in the Balkans between 2000 and 2003. In all assessments detailed fieldwork and laboratory analysis in independent laboratories were a key factor to ensure the scientific solidness of the reports.

Kosovo 2000-2001

3. The overall aim of the UNEP mission in Kosovo was to examine the possible risks from any remaining depleted uranium contamination of ground, water and biota, and from solid pieces of depleted uranium (i.e. intact or fragmented

penetrators) still in the environment. The key questions facing the mission were: What are the present levels of depleted uranium contamination in Kosovo? What are the corresponding radiological and chemical risks, both now and in the future? Is there any need for remedial measures or restrictions? If so, which measures are reasonable and realistic?

4. The final report, *Depleted Uranium in Kosovo: Post-conflict Environmental Assessment*,[1] published in March 2001, concluded that analyses of the samples collected showed only low levels of radioactivity. Furthermore, the results suggested that there was no immediate cause for concern regarding toxicity. However, major scientific uncertainties persisted over the long-term environmental impacts of depleted uranium, especially regarding groundwater.

5. Due to these scientific uncertainties, UNEP called for precaution and recommended action to be taken for the clean-up and decontamination of the polluted sites, for awareness-raising among the local population and for future monitoring.

6. During the Kosovo conflict, a few sites outside Kosovo, in Serbia and Montenegro, had also been targeted with ordnance containing depleted uranium. It was, therefore, evident that a second phase of scientific work would be needed following the Kosovo assessment.

Serbia and Montenegro 2001-2002

7. The report *Depleted Uranium in Serbia and Montenegro: Post-conflict Environmental Assessment in the Federal Republic of Yugoslavia*[2] provided additional information and revealed important new discoveries on the environmental behaviour of depleted uranium. Experts found that more than two years after the end of the conflict, particles of depleted uranium dust could be detected from soil samples and from sensitive bio-indicators like lichen. However, as the levels were extremely low, it was only through state-of-the-art laboratory analyses that these could be detected. Based on the findings, UNEP could confirm that contamination at the targeted sites was widespread, though no significant level of radioactivity could be measured.

8. Furthermore, during this assessment the UNEP team used modern air-sampling techniques and detected airborne depleted uranium particles at two sites. While all levels detected were below international safety limits, these results added valuable new information to the scientific body of knowledge concerning the behaviour of depleted uranium and had important implications for site decontamination and construction works.

9. As in the Kosovo case, UNEP called for precaution, monitoring and awareness-raising for the local population. Clean-up and decontamination had started in both Serbia and Montenegro when the assessment was ongoing, and detailed recommendations on these issues were given in the report.

[1] Available at http://postconflict.unep.ch/publications/uranium.pdf.

[2] Available at http://postconflict.unep.ch/publications/duserbiamont.pdf.

Bosnia and Herzegovina 2002-2003

10. Finally, depleted uranium was used in Bosnia and Herzegovina during bombings in the mid-1990s, and UNEP undertook an assessment of the impacts in September 2002. The final report, *Depleted Uranium in Bosnia and Herzegovina: Post-conflict Environmental Assessment*, was released in March 2003.[3]

11. This report contained four significant findings. First, detailed laboratory analyses of surface soil samples revealed low levels of localized ground contamination. While local ground contamination could be detected up to 200 metres from the impact zone, it was typically detected within a 100-metre radius.

12. Second, penetrators buried near the ground surface and recovered by UNEP had decreased in mass by approximately 25 per cent over seven years. On the basis of this finding, and correlated with penetrators examined in the earlier UNEP studies, it was possible to determine that a depleted uranium penetrator could be fully oxidized to corrosion products, including uranium oxides and carbonates, within 25 to 35 years of impact. Following that time period, no more metallic depleted uranium from penetrators would be found buried in the soil of the Balkans.

13. Third, depleted uranium contamination of drinking water was found for the first time at one of the surveyed sites. The concentrations were very low and the corresponding radiation doses insignificant for any health risk. Nevertheless, because the mechanism that governs the contamination of water in a given environment is not known in detail, it was recommended that water sampling and measurements should continue for several years, and that an alternative water source should be used when depleted uranium was found in drinking water.

14. Finally, depleted uranium contamination of air was found at two sites, including air and surface contamination inside two buildings at two different sites. Resuspension of depleted uranium particles due to wind or human activities was the most likely cause. The concentrations were very low and resulting radiation doses insignificant. However, precautionary decontamination and clean-up steps were recommended for the buildings on site, as they were being used by the military and civilian population.

15. Overall, the findings of this study were consistent with the findings of the earlier UNEP assessment work in the region: the levels of depleted uranium contamination were not a cause for alarm, but some uncertainty remained with respect to future potential groundwater contamination from penetrator corrosion products.

16. In the work mentioned above, UNEP maintained close cooperation with the International Atomic Energy Agency and the World Health Organization in this field of work, respecting the specific mandate of each organization.

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[3] Available at http://postconflict.unep.ch/publications/BiH_DU_report.pdf.

United Nations A/63/171/Add.1

General Assembly

Distr.: General
11 September 2008

Original: English

Sixty-third session
Item 91 (y) of the provisional agenda*
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Confidence-building measures in the regional and subregional context

Report of the Secretary-General

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08-50405 (E) 240908

II. Replies received from Member States

Bangladesh

[Original: English]
[31 July 2008]

It is an important resolution for maintaining regional peace and security. Confidence-building measures through disarmaments are required for ensuring peace and stability. Resources released through disarmament can be utilized for economic, environment and social development, particularly for developing nations. Such measures will contribute to confidence-building, as well as lead to development and socio-economic progress.

Chile

In order to comply with General Assembly resolutions on the control and limitation of documentation prepared by the Secretariat and the guidelines of the Secretary-General for reports drafted and/or compiled by the Secretariat, the reply received from the Government of Chile has not been reproduced since it exceeded the acceptable page limit. The full text of the reply will be made available on the website of the Office for Disarmament Affairs (http://disarmament.un.org/rdb/).